

REMARKS

Drawings

The drawings were objected to under 37 CFR 1.83(a) because they failed to show the shroud (in Figs 2a and 3a) in relatively air tight and frictional engagement with the inner wellbore wall as described in the description. With respect, the present application does not contain Figs 2a and 3a. Applicant has amended Fig. 2 to now show the shroud 28 in relatively air tight and frictional engagement with the inner well bore wall as described in the description.

The drawings were objected to because Fig. 1 does not show how the compressed air (36) gets through the piston (24) to get to the venturi (34) in the inner pipe (6). With respect, Fig. 1 is a vertical cross-section of a clean out apparatus comprising concentric drill string and does not show concentric drill string with a clean out tool attached thereto. However, Fig. 2 is a vertical cross-section of a clean out apparatus comprising concentric drill string and clean out tool attached thereto. The clean out tool 2 comprises clean out spear 22 connected to a reciprocating piston (24) moving within piston casing (26). The reciprocating piston (24) can be in either an "open" position (when clean out medium, e.g. air, is flowing) or a "closed" position (when clean out medium is not flowing). Fig. 2 shows the reciprocating piston (24) in the closed position, i.e., the position it would be in just before the air reaches it. When the reciprocating piston (24) is in the closed position, the venturi (34) would also be in the "closed", i.e., covered, position.

Thus, the flow of compressed air (76') through the piston (24) to the venturi (34) is not illustrated in the closed embodiment as shown in Fig. 2. Nevertheless, if the Examiner requires, Applicant proposes that an additional drawing be provided which shows the reciprocating piston (24) in the open position.

Examiner further objected to the drawings under 37 CFR 1.83(a) as they did not show the rotary table or top drive. With respect, there are no claims directed towards a rotary table or top drive.

Disclosure

The disclosure has been amended accordingly to more clearly define the invention. No new matter has been added.

In particular, "inner annulus" has been replaced at a number of instances with "inner space". Support for such an amendment can be found on page 26, lines 16-24, which talks about "the inner space" of the inner coiled tubing string. No new matter has been added.

Claim Objections

Claims 16 and 61-63 have been amended as suggested by the examiner.

Double Patenting

Claims 1, 4-6, 10-12, 16-24, 26, 27, 32-34, 37-44, 52, 56-58, 63-65, 68-76, 81-83, 86-90 were provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 3, 5-9, 12-20, and 24-26 of copending Application No. 10/346,125.

It is respectfully submitted that claims 1, 4-6, 10-12, 16-24, 26, 27, 32-34, 37-44, 52, 56-58, 63-65, 68-76, 81-83, 86-90 are patentably distinct from 1, 3, 5-9, 12-20, and 24-26 of copending Application No. 10/346,125. In particular, with respect to claims 75-76, 81-83 and 86-90, these claims are directed towards a single wall production tubing string and as such are patentably distinct from claims 1, 3, 5-9, 12-20, and 24-26 of copending Application No. 10/346,125.

Applicant will entertain a timely filing of a terminal disclaimer, if required. Please note that the conflicting application is commonly owned with the present application.

Claims 1, 3, 5, 6, 10-24, 26, 28, 32-52, 55, 57, 58, 63-76, 81-97 were provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-3, 11-23, 25, 30-43, and 46 of copending Application No. 10/347,861.

It is respectfully submitted that claims 1, 3, 5, 6, 10-24, 26, 28, 32-52, 55, 57, 58, 63-76, 81-97 are patentably distinct from claims 1-3, 11-23, 25, 30-43, and 46 of copending Application No. 10/347,861. In particular, with respect to claims 75-76, 81-97, these claims are directed towards a single wall production tubing string and as such are patentably distinct from claims 1-3, 11-23, 25, 30-43, and 46 of copending Application No. 10/347,861.

Applicant will entertain a timely filing of a terminal disclaimer, if required. Please note that the conflicting application is commonly owned with the present application.

Claims 1, 4-6, 10-24, 26-27, 32-44, 52, 56-58, 63-76, and 81-90 were provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims of copending Application No. 10/644,748.

It is respectfully submitted that claims 1, 4-6, 10-24, 26-27, 32-44, 52, 56-58, 63-76, and 81-90 are patentably distinct from claims of copending Application No. 10/644,749. In particular, with respect to claims 75, 76, and 81-90, these claims are directed towards a single wall production tubing string and as such are patentably distinct from claims of copending Application No. 10/644,749.

Applicant will entertain a timely filing of a terminal disclaimer, if required. Please note that the conflicting application is commonly owned with the present application.

Claims 1, 3, 5, 6, 10-24, 26, 28, 32-52, 55, 57, 58, 63-75, 77, and 81-97 were provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-4, 11-12, 15-24, 30, 35, 38-49, 51 and 54 of copending Application No. 10/644,749.

It is respectfully submitted that claims 1, 3, 5, 6, 10-24, 26, 28, 32-52, 55, 57, 58, 63-75, 77, and 81-97 are patentably distinct from claims 1-4, 11-12, 15-24, 30, 35, 38-49, 51 and 54 of copending Application No. 10/644,749. In particular, with respect to claims 75, 77, and 81-97, these claims are directed towards a single wall production tubing string and as such are patentably distinct from claims 1-4, 11-12, 15-24, 30, 35, 38-49, 51 and 54 of copending Application No. 10/644,749.

Applicant will entertain a timely filing of a terminal disclaimer, if required. Please note that the conflicting application is commonly owned with the present application.

Claims Rejections – 35 USC § 102

1. Claims 1, 2, 19, 52, 54 and 72 were rejected under 35 U.S.C. 102(2) as being anticipated by Stewart (U.S. 4,718,503). Such rejection is traversed for the reasons now following.

With respect to claims 1, 2 and 19, independent method claim 1 has been amended to more clearly define the particular embodiment of the invention sought to be protected by it. In particular, claim 1 is now directed towards a clean out method including, among other steps, delivering concentric drill pipe string having an inner space and an outer annulus into a well bore and introducing pressurized clean out medium into the well bore through one of the inner space or outer annulus at a pressure substantially equal to or below the pressure of the hydrocarbon formation.

The examiner states that Stewart teaches introduction of clean out medium (25) into a well bore at or below the formation pressure at col. 1, lines 30-39. With respect, Stewart teaches at col. 1, lines 30-39, that the method therein comprises drilling a borehole section while circulating a first low-viscosity drilling fluid through the interior of the inner drill pipe, the drill bit and the annular space. It does not teach at what pressure this low-viscosity drilling fluid is introduced. A low-viscosity fluid (for example, water) can certainly be injected at a pressure greater than the pressure of the formation. Using a low-viscosity fluid does not teach a person skilled in the art the step of introducing clean out medium at a pressure substantially equal to or below the pressure of the hydrocarbon formation. Hence, Stewart does not teach the step of introducing clean out medium at a pressure substantially equal to or below the pressure of the hydrocarbon formation.

In summary, the particular embodiment of the invention in claim 1 is clearly patentably distinguishable over Stewart. Thus, dependent claim 19 is also not anticipated by this prior art reference. Claim 2 has been cancelled. Favorable reconsideration is respectfully requested.

With respect to claims 52, 54 and 72, claim 52 has been amended to more clearly define the particular embodiment of the invention sought to be protected by it. Claim 52 is directed to a

clean out method including the step of delivering into a well bore a single wall production tubing string having an inside and an outside and forming an annulus between the outside of the production tubing string and a wall of said well bore.

Stewart does not teach a clean out method using a single wall production tubing string whereby clean out medium is circulated either through the well bore annulus and up the inside of the production tubing string or through the inside of the production tubing string and up the well bore annulus. Instead, Stewart teaches a pipe string comprising a pair of concentric drill pipes with an annular space therebetween and circulating drilling fluid through the interior of the inner drill pipe and the annular space (see column 1, lines 33-36).

In summary, the particular embodiment of the invention in claim 52 is clearly patentably distinguishable over Stewart. Thus, dependent claims 54 and 72 are also not anticipated by this prior art reference. Favorable reconsideration is respectfully requested.

2. Claims 1, 3, 5-7, 18, 22, 52, 55, 57-59, 68 and 71 were rejected under 35 U.S.C. 102(2) as being anticipated by Smet (U.S. 5,178,223). Such rejection is traversed for the reasons now following.

With respect to claims 1, 3, 5-7, 18, and 22, independent method claim 1 has been amended to more clearly define the particular embodiment of the invention sought to be protected by it. In particular, claim 1 is now directed to a clean out method comprising the step of delivering into a well bore a concentric drill pipe string having an inner pipe and an outer pipe.

Smet, on the other hand, teaches using a flexible bundle of hoses. In particular, in column 3, lines 11-13, Smet teaches that the bundle of hoses used "is formed by a flexible casing 5 in which a number of flexible hoses are situated" [emphasis added]. This bundle of hoses can be wrapped around a drum 12 as shown in Figure 1. Thus, Smet does not teach a concentric drill pipe string, which a person skilled in the art would know is not flexible enough to be spooled on a reel or drum. Further, as shown in Fig. 1 of the present application, joints of concentric drill pipe are threaded together (threads 42) to form a continuous concentric drill pipe string. A

person skilled in the art would be aware that a concentric drill pipe string comprises a plurality of joints of concentric drill pipe.

In summary, the particular embodiment of the invention in claim 1 is clearly patentably distinguishable over Smet. Thus, dependent claims 5-7, 18, and 22 are also not anticipated by this prior art reference. Claim 3 has been cancelled. Favorable reconsideration is respectfully requested.

With respect to claims 52, 55, 57-59, 68 and 71, claim 52 has been amended to more clearly define the particular embodiment of the invention sought to be protected by it. The method of claim 52 includes the step of delivering into a well bore a single wall production tubing string having inside and an outside and forming an annulus between the outside of the production tubing string and a wall of said well bore.

Smet does not teach a clean out method using a single wall production tubing string whereby clean out medium is circulated either through the well bore annulus and up the inside of the production tubing string or through the inside of the production tubing string and up the well bore annulus. Instead, Smet teaches a method for making a hole using a bundle of hoses. This is clearly taught in the specification at column 3, lines 11-15, wherein the device for making a hole in the ground comprises "a bundle of hoses 4" where "[t]he bundle is formed by a flexible casing 5 in which a number of flexible tubes are situated, namely a central hose 6, two high pressure hoses 7 and five low pressure hoses 8" [emphasis added]. Thus, Smet does not teach using a single wall production tubing string to clean out a well bore.

In summary, the particular embodiment of the invention in claim 52 is clearly patentably distinguishable over Smet. Thus, dependent claims 55, 57-59, 68 and 71 are also not anticipated by this prior art reference. Favorable reconsideration is respectfully requested.

3. Claims 1, 4, 7, 9, 23, 24, 52, 56, 59, and 62 were rejected under 35 U.S.C. 102(2) as being anticipated by Kunnemann (U.S. 3,416,618). Such rejection is traversed for the reasons now following.

With respect to claims 1, 4, 7, 9, 23, and 24, independent method claim 1 has been amended to more clearly define the particular embodiment of the invention sought to be

protected by it. In particular, claim 1 is now directed towards a clean out method comprising the steps of delivering into a well bore a concentric drill pipe string having an inner space and an outer annulus and introducing pressurized clean out medium into the well bore through one of the inner space or outer annulus at a pressure substantially equal to or below the pressure of the hydrocarbon formation.

Kunnemann does not teach introducing clean out medium at a pressure substantially equal to or below the pressure of the hydrocarbon formation.

In summary, the particular embodiment of the invention in claim 1 is clearly patentably distinguishable over Kunnemann. Thus, dependent claims 7, 9, 23, and 24 are also not anticipated by this prior art reference. Claim 4 has been cancelled. Favorable reconsideration is respectfully requested.

With respect to claims 52, 56, 59, and 62, claim 52 has been amended to more clearly define the particular embodiment of the invention sought to be protected by it. The clean out method of claim 52 includes the step of delivering into a well bore a single wall production tubing string having an inside and an outside and forming an annulus between the outside of the production tubing string and a wall of said well bore. Clean out medium is introduced either through the well bore annulus and up the inside of the production tubing string or through the inside of the production tubing string and up the well bore annulus.

Kunnemann does not teach a clean out method using a single wall production tubing string whereby clean out medium is circulated either through the well bore annulus and up the inside of the production tubing string or through the inside of the production tubing string and up the well bore annulus. Instead, Kunnemann teaches concentric drill pipe having an inner and outer drill string and annulus therebetween whereby drilling fluid is introduced into the annulus of the concentric drill pipe and up through the inner drill string. Thus, Kunnemann does not teach using a single wall production tubing string to clean out a well bore.

In summary, the particular embodiment of the invention in claim 52 is clearly patentably distinguishable over Kunnemann. Thus, dependent claims 56, 59, and 62 are also not anticipated by this prior art reference. Favorable reconsideration is respectfully requested.

4. Claims 1, 15-17, 52 and 68-70 were rejected under 35 U.S.C. 102(2) as being anticipated by Farris et al. (U.S. 4,739,844). Such rejection is traversed for the reasons now following.

With respect to claims 1, and 15-17, independent method claim 1 has been amended to more clearly define the particular embodiment of the invention sought to be protected by it. In particular, claim 1 is now directed towards a clean out method comprising the steps of delivering into a well bore a concentric drill pipe string having an inner space and an outer annulus and introducing pressurized clean out medium into the well bore through one of the inner space or outer annulus at a pressure substantially equal to or below the pressure of the hydrocarbon formation.

Farris does not teach introducing clean out medium at a pressure substantially equal to or below the pressure of the hydrocarbon formation. Farris simply teaches at column 1, lines 60-62 that "[c]ompressed air or other fluid under pressure to forced [sic] down the outer passage 42 of the dual wall drill string sections...".

In summary, the particular embodiment of the invention in claim 1 is clearly patentably distinguishable over Farris. Thus, dependent claims 15-17 are also not anticipated by this prior art reference. Favorable reconsideration is respectfully requested.

With respect to claims 52 and 68-70, claim 52 has been amended to more clearly define the particular embodiment of the invention sought to be protected by it. The clean out method of claim 52 includes the step of delivering into a well bore a single wall production tubing string having an inside and an outside and forming an annulus between the outside of the production tubing string and a wall of said well bore. Clean out medium is either introduced through the well bore annulus and up the inside of the production tubing string or through the inside of the production tubing string and up the well bore annulus.

Farris does not teach a clean out method using a single wall production tubing string whereby clean out medium is circulated either through the well bore annulus and up the inside of the production tubing string or through the inside of the production tubing string and up the well bore annulus. Instead, Farris teaches dual wall drill string having an inner and outer drill string and annulus therebetween whereby drilling fluid is introduced into the annulus of the concentric

drill string and up through the center cavity (see column 1, lines 60-65). Thus, Farris does not teach using a single wall production tubing string to clean out a well bore.

In summary, the particular embodiment of the invention in claim 52 is clearly patentably distinguishable over Farris. Thus, dependent claims 68-70 are also not anticipated by this prior art reference. Favorable reconsideration is respectfully requested.

5. Claims 1, 25, 52, 53, 59 and 60 were rejected under 35 U.S.C. 102(2) as being anticipated by Misselbrook (PCT/US99/20783). Such rejection is traversed for the reasons now following.

With respect to claims 1 and 25, independent method claim 1 has been amended to more clearly define the particular embodiment of the invention sought to be protected by it. In particular, claim 1 is now directed towards a clean out method including the steps of delivering into a well bore a concentric drill pipe string having an inner space and an outer annulus and introducing pressurized clean out medium into the well bore through one of the inner space or outer annulus at a pressure substantially equal to or below the pressure of the hydrocarbon formation.

Misselbrook does not teach (i) introducing clean out medium at a pressure substantially equal to or below the pressure of the hydrocarbon formation. Neither does Misselbrook teach (ii) introducing a concentric drill pipe string. Rather, Misselbrook teaches introducing a partial coiled tubing string (PCCT). Finally, Misselbrook does not teach (iii) introducing clean out medium through either the inner space of the inner pipe or the annulus between the inner pipe and the outer pipe. Rather, Misselbrook teaches pumping fluid down the production tubing-tubing string annulus (*e.g.*, see article 59 in Figure 3) and up the tubing string. The annulus 56 of the PCCT is sealed as described on page 7, second paragraph, by seal 54, "sealing annulus 56 between inner tubing 52 and outer tubing 50". This is best illustrated in Figure 8.

In summary, the particular embodiment of the invention in claim 1 is clearly patentably distinguishable over Misselbrook. Thus, dependent claim 25 is also not anticipated by this prior art reference. Favorable reconsideration is respectfully requested.

With respect to claims 52, 53, 59 and 60, claim 52 has been amended to more clearly define the particular embodiment of the invention sought to be protected by it. The clean out

method of claim 52 includes the step of delivering a single wall production tubing string into a well bore. The well bore can be bare (i.e., uncased) or cased (see Figure 10 of the specification of the present application). Further, clean out medium is introduced into the well bore either through the inside of the production tubing string or the production tubing-well bore annulus.

On the other hand, Misselbrook teaches a clean out operation that typically precedes gravel packing (see page 3, paragraph 4). Misselbrook teaches at page 3, paragraph 4 that "[i]n clean out mode of the preferred embodiments of the instant invention, a partial coiled tubing string, such as PCCT, is injected through production tubing to a level of sand plugging the bottom of the well" [emphasis added]. Further, Misselbrook teaches that "[c]lean out fluid is pumped down the annulus of the production tubing-coiled tubing string" [emphasis added]. Hence, Misselbrook does not teach introducing single wall production tubing into a well bore or introducing clean out medium into the well bore annulus.

In summary, the particular embodiment of the invention in claim 52 is clearly patentably distinguishable over Misselbrook. Thus, dependent claims 53, 59 and 60 are also not anticipated by this prior art reference. Favorable reconsideration is respectfully requested.

6. Claims 26, 27, 29, 30, 75, 76, 78, and 79 were rejected under 35 U.S.C. 102(b) as being anticipated by Fischer (U.S. 5,174,394). Such rejection is traversed for the reasons now following.

With respect to claims 26, 27, 29, and 30, independent apparatus claim 26 has been amended to more clearly define the particular embodiment of the invention sought to be protected by it. In particular, claim 26 is now directed to a clean out apparatus comprising, among other elements, a surface flow control means positioned at or near the surface of the well bore. Fischer does not teach a clean out apparatus comprising a surface flow control means.

In summary, the particular embodiment of the invention in claim 26 is clearly patentably distinguishable over Fischer. Thus, dependent claims 27, 29 and 30 are also not anticipated by this prior art reference. Favorable reconsideration is respectfully requested.

With respect to claims 75, 76, 78, and 79, independent apparatus claim 75 has been amended to more clearly define the particular embodiment of the invention sought to be

protected by it. In particular, claim 75 is directed to an apparatus comprising, among other elements, a single wall production tubing string. Fischer teaches a drilling tube 1 primarily comprising an inner tube 3 that is surrounded by an outer tube 4 (i.e., a double wall drilling tube). Thus, Fischer does not teach a single wall production tubing string.

In summary, the particular embodiment of the invention in claim 75 is clearly patentably distinguishable over Fischer. Thus, dependent claims 76, 78 and 79 are also not anticipated by this prior art reference. Favorable reconsideration is respectfully requested.

Claim Rejections – 35 U.S.C. 103

8. Claims 7-8, and 61 were rejected under 35 U.S.C. 103(a) as being unpatentable over Stewart ('503) in view of Fischer et al. ('394). Such rejection is traversed for the reasons now following.

Claims 7 and 8 are dependant on method claim 1 (as amended) and claim 61 dependent on method claim 52 (as amended). As stated above, claim 1 is now directed towards a clean out method including, among other steps, delivering concentric drill pipe string having an inner space and an outer annulus into a well bore and introducing pressurized clean out medium into the well bore through one of the inner space or outer annulus at a pressure substantially equal to or below the pressure of the hydrocarbon formation. Stewart does not teach the step of introducing clean out medium at a pressure substantially equal to or below the pressure of the hydrocarbon formation. Neither does Fischer. Thus, modifying Stewart with the addition of a pump or mud pump as taught by Fischer would not result in the invention as claimed in claims 7 or 8.

As stated above, claim 52 is directed to a clean out method including the step of delivering into a well bore a single wall production tubing string having inside and an outside and forming an annulus between the outside of the production tubing string and a wall of said well bore.

Stewart does not teach a clean out method using a single wall production tubing string whereby clean out medium is circulated either through the well bore annulus and up the inside of the production tubing string or through the inside of the production tubing string and up the well

bore annulus. Instead, Stewart teaches a pipe string comprising a pair of concentric drill pipes with an annular space therebetween and circulating drilling fluid through the interior of the inner drill pipe and the annular space (see column 1, lines 33-36). Similarly, Fischer teaches a drilling tube 1 primarily comprising an inner tube 3 that is surrounded by an outer tube 4 (see column 4, lines 60-62). Thus, modifying Stewart to include a pump as taught by Fischer would not result in the invention as claimed in claim 61.

In summary, the particular embodiments of the invention in claims 7-8 and 61 are clearly patentable over Stewart in view of Fischer et al. Favorable reconsideration is respectfully requested.

9. Claims 10, 11, 26, 31-33, 44, 63, 75 and 80-82 were rejected under 35 U.S.C. 103(a) as being unpatentable over Kunnemann ('618) in view of Sinclair ('515). Such rejection is traversed for the reasons now following.

First, it is submitted that the examiner has failed to establish a prima facie case of obviousness for claims 10, 11, 26, 31-33, 44, 63, 75 and 80-82. Kunnemann teaches a drilling method using concentric drill string. Sinclair, on the other hand, teaches a single wall drill string 20 and at least two riser pipes 18 (see Fig. 1). In fact, Sinclair teaches away from the use of concentric drill string.

Sinclair relates to underground shaft drilling in general and, more particularly, to a dry pneumatic system capable of drilling wide diameter shafts into hard rock formations within established underground excavations (column 1, lines 6-10). At column 1, lines 60-64, Sinclair states that "[t]he size and power requirements of the drill rig, and the costs associated with the multiple wall drill string and fluid cleaning equipment generally preclude it from consideration as a feasible means of drilling shafts in an underground hard rock environment" [emphasis added]. Sinclair goes on to teach an underground shaft drilling apparatus which does not comprise concentric drill string but rather a single wall drill string and riser pipes.

Thus, there was no suggestion, teaching, or motivation to combine Kunnemann with Sinclair, especially in view of Sinclair actually teaching away from using multiple wall drill

string for clean out. Thus, claims 10, 11, 26, 31-33, 44, 63, 64, 75 and 80-82 are not obvious over Kunnemann in view of Sinclair. Favorable reconsideration is respectfully requested.

In the alternative, claims 10 and 11 are not obvious over Kunnemann in view of Sinclair for the reasons now following. Claims 10 and 11 are dependant on independent method claim 1 (as amended). Claim 1 has been amended to more clearly define the particular embodiment of the invention sought to be protected by it. In particular, claim 1 is now directed towards a clean out method comprising, among other steps, the steps of delivering into a well bore a concentric drill pipe string having an inner space and an outer annulus and introducing pressurized clean out medium into the well bore through one of the inner space or outer annulus at a pressure substantially equal to or below the pressure of the hydrocarbon formation.

Kunnemann does not teach introducing clean out medium at a pressure substantially equal to or below the pressure of the hydrocarbon formation. Neither does Sinclair. Thus, modifying Kunnemann with the addition of a suction means (suction compressor) as taught by Sinclair would not result in the invention as claimed in claims 10 or 11. Favorable reconsideration is respectfully requested.

With respect to claims 26, 31-33, and 44, these claims are not obvious over Kunnemann in view of Sinclair for the reasons now following. Independent apparatus claim 26 has been amended to more clearly define the particular embodiment of the invention sought to be protected by it. In particular, claim 26 is now directed to a clean out apparatus comprising, among other elements, a surface flow control means positioned at or near the surface of the well bore. Kunnemann does not teach a clean out apparatus comprising a surface flow control means. Neither does Sinclair. Thus, modifying Kunnemann with the addition of a discharging compressor, a removing means or a suction compressor as taught by Sinclair would not result in the invention as claimed in claims 26, 31-33 and 44. Favorable reconsideration is respectfully requested.

With respect to claims 63 and 64, claim 63 has been amended to now depend on claim 52. Claim 64 depends on claim 63. Thus, claims 63 and 64 are not obvious over Kunnemann in view of Sinclair. Favorable reconsideration is respectfully requested.

With respect to claims 75, and 80-82, these claims are not obvious over Kunnemann in view of Sinclair for the reasons now following. Independent apparatus claim 75 has been amended to more clearly define the particular embodiment of the invention sought to be protected by it. In particular, claim 75 is directed to an apparatus for cleaning out material from a well bore comprising, among other elements, means for introducing into a well bore a pressurized clean out medium through either the inside of a single wall production tubing string or well bore annulus (*i.e.*, the annulus formed between the outside of the production tubing string and the well bore wall), and means for removing the material and clean out medium through the other of the inside of the single wall production tubing string and the well bore annulus to the surface of the well bore.

Kunnemann does not teach a single wall production tubing string. Furthermore, neither Kunnemann nor Sinclair teaches (1) an introducing means for introducing clean out medium into the well bore annulus or (2) a removing means for removing material and clean out medium through either the well bore annulus or the inside of the production tubing string. There is no suggestion in either Kunnemann or Sinclair of an introducing means (*e.g.* discharging compressor) which introduces clean out medium into the well bore annulus.

Further, Sinclair teaches a second compressor 38 (removing means) which draws a vacuum in riser pipes 18. It does not teach a removing means operably connected near the top of the production tubing string for removing clean out medium and materials through the inside of the production tubing string. Nor does Sinclair teach a removing means for removing material through the well bore annulus. Hence, claims 75, and 80-82 are not obvious over Kunnemann in view of Sinclair. Favorable reconsideration is respectfully requested.

10. Claims 26, 28, 45-49, 75, 77, and 91-95 were rejected under 35 U.S.C. 103(a) as being unpatentable over Smet (223) in view of Sinclair (515). Such rejection is traversed for the reasons now following.

First, it is submitted that the examiner has failed to establish a *prima facie* case of obviousness for claims 26, 28, 45-49, 75, 77, 91-95. Smet teaches a drilling method using a bundle of hoses, some of which are concentric (*i.e.*, flexible casing 5 and central hose 6).

Sinclair, on the other hand, teaches a single wall drill string 20 and at least two riser pipes 18 (see Fig. 1). In fact, Sinclair teaches away from the use of concentric drill string.

In particular, Sinclair relates to underground shaft drilling in general and, more particularly, to a dry pneumatic system capable of drilling wide diameter shafts into hard rock formations within established underground excavations (column 1, lines 6-10). At column 1, lines 60-64, Sinclair states that "[t]he size and power requirements of the drill rig, and the costs associated with the multiple wall drill string and fluid cleaning equipment generally preclude it from consideration as a feasible means of drilling shafts in an underground hard rock environment" [emphasis added]. Sinclair goes on to teach an underground shaft drilling apparatus which does not comprise concentric drill string but rather a single wall drill string.

Thus, there was no suggestion, teaching, or motivation to combine Smet with Sinclair, especially in view of Sinclair actually teaching away from using multiple wall drill string for clean out. Thus, claims 26, 28, 45-49, 75, 77, and 91-95 are not obvious over Smet in view of Sinclair. Favorable reconsideration is respectfully requested.

In the alternative, claims 26, 28, and 45-49 are not obvious over Smet in view of Sinclair for the reasons now following. Independent apparatus claim 26 has been amended to more clearly define the particular embodiment of the invention sought to be protected by it. In particular, claim 26 is now directed to a clean out apparatus comprising, among other elements, a surface flow control means positioned at or near the surface of the well bore. Smet does not teach a clean out apparatus comprising a surface flow control means. Neither does Sinclair. Thus, modifying Smet with the addition of a suction compressor as taught by Sinclair would not result in the invention as claimed in claims 26, 28, and 45-49. Favorable reconsideration is respectfully requested.

With respect to claims 75, 77, 91-95, these claims are not obvious over Smet in view of Sinclair for the reasons now following. Independent apparatus claim 75 has been amended to more clearly define the particular embodiment of the invention sought to be protected by it. In particular, claim 75 is directed to an apparatus for cleaning out material from a well bore comprising, among other elements, means for introducing into a well bore a pressurized clean out medium through either the inside of a single wall production tubing string or well bore

annulus (i.e., the annulus formed between the outside of the production tubing string and the well bore wall), and means for removing the material and clean out medium through the other of the inside of the production tubing string and the well bore annulus to the surface of the well bore.

Smet does not teach a single wall production tubing string. Furthermore, neither Smet nor Sinclair teaches (1) an introducing means for introducing clean out medium into the well bore annulus or (2) a removing means for removing material and clean out medium through either the well bore annulus or the inside of the production tubing string. There is no suggestion in either Smet or Sinclair of an introducing means (e.g. discharging compressor) which introduces clean out medium into the well bore annulus.

Further, Sinclair teaches a second compressor 38 (removing means) which draws a vacuum in riser pipes 18. It does not teach a removing means operably connected near the top of the production tubing string for removing clean out medium and materials through the inside of the production tubing string. Nor does Sinclair teach a removing means for removing material through the well bore annulus. Hence, claims 75, and 80-82 are not obvious over Smet in view of Sinclair. Favorable reconsideration is respectfully requested.

11. Claims 26, 28, 50-51, 75, 77, 91 and 96-97 were rejected under 35 U.S.C. 103(a) as being unpatentable over International Patent WO0120124 to Misselbrook et al. in view of Fischer et al. (394). Such rejection is traversed for the reasons now following.

Claims 26, 28, and 50-51 are not obvious over Misselbrook et al. in view of Fischer et al. for the reasons now following. Independent apparatus claim 26 has been amended to more clearly define the particular embodiment of the invention sought to be protected by it. In particular, claim 26 is now directed to a clean out apparatus comprising, among other elements, a surface flow control means positioned at or near the surface of the well bore. Misselbrook et al. does not teach a clean out apparatus comprising a surface flow control means. Neither does Fischer et al. Thus, modifying Misselbrook et al. with the addition of a removing means as taught by Fischer et al. would not result in the invention as claimed in claims 26, 28, and 50-51. Favorable reconsideration is respectfully requested.

With respect to claims 75, 77, 91 and 96-97, these claims are not obvious over Misselbrook in view of Fischer for the reasons now following. Independent claim 75 has been

amended to more clearly define the particular embodiment of the invention sought to be protected by it.

In particular, claim 75 is directed to an apparatus for cleaning out material from a well bore comprising, among other elements, means for introducing into a well bore a pressurized clean out medium through either the inside of a single wall production tubing string or well bore annulus (i.e., the annulus formed between the outside of the production tubing string and the well bore wall), and means for removing the material and clean out medium through the other of the inside of the production tubing string and the well bore annulus to the surface of the well bore.

Misselbrook teaches a method and apparatus whereby clean out materials are only removed through the center of a partial coil-in-coil tubing. Fischer, on the other hand, teaches a method and apparatus whereby clean out materials are only removed through an annulus between two concentric tubes, i.e., by suction pump 9. As can be seen in Figs. 1, 4 and 5 of Fischer, suction pump 9 is exclusively connected to a discharge opening of the outer tube. Thus, it would not have been obvious to modify Misselbrook to have a removing means as taught by Fischer. Hence, claims 75, 77, 91 and 96-97 are not obvious over Misselbrook in view of Fischer. Favorable reconsideration is respectfully requested.

12. Claims 26, 37-41 and 86-88 were rejected under 35 U.S.C. 103(a) as being unpatentable over Farris et al. ('844) in view of Kunnemann ('618) and Sinclair ('515). Such rejection is traversed for the reasons now following.

First, it is submitted that the examiner has failed to establish a prima facie case of obviousness for claims 26, 37-41 and 86-88. Both Farris and Kunnemann teach dual wall drill string comprising an inner pipe and an outer pipe. Sinclair, on the other hand, teaches a single wall drill string 20 and at least two riser pipes 18 (see Fig. 1). In fact, Sinclair teaches away from the use of concentric or dual wall drill string.

Sinclair relates to underground shaft drilling in general and, more particularly, to a dry pneumatic system capable of drilling wide diameter shafts into hard rock formations within established underground excavations (column 1, lines 6-10). At column 1, lines 60-64, Sinclair states that "[t]he size and power requirements of the drill rig, and the costs associated with the multiple wall drill string and fluid cleaning equipment generally preclude it from consideration

as a feasible means of drilling shafts in an underground hard rock environment" [emphasis added]. Sinclair goes on to teach an underground shaft drilling apparatus which does not comprise concentric drill string but rather a single wall drill string and riser pipes.

Thus, there was no suggestion, teaching, or motivation to combine Farris et al. or Kunnemann with Sinclair, especially in view of Sinclair actually teaching away from using multiple wall drill string for clean out. Thus, claims are not obvious over Farris et al. in view of Kunnemann and Sinclair. Favorable reconsideration is respectfully requested.

In the alternative, claims 26, and 37-41 are not obvious over Farris et al. in view of Kunnemann and Sinclair for the reasons now following. Independent apparatus claim 26 has been amended to more clearly define the particular embodiment of the invention sought to be protected by it. In particular, claim 26 is now directed to a clean out apparatus comprising, among other elements, a surface flow control means positioned at or near the surface of the well bore. None of the three cited pieces of prior art teach a clean out apparatus comprising a surface flow control means. Thus, modifying Farris with the addition of a discharge compressor as taught by Kunnemann and a suction compressor as taught by Sinclair would not result in the invention as claimed in claims 26 and 37-41. Favorable reconsideration is respectfully requested.

With respect to claims 86-88, which depend on claim 75, these claims are not obvious over Farris in view of Kunnemann and Sinclair for the reasons now following. Independent apparatus claim 75 has been amended to more clearly define the particular embodiment of the invention sought to be protected by it. In particular, claim 75 is directed to an apparatus for cleaning out material from a well bore comprising, among other elements, means for introducing into a well bore a pressurized clean out medium through either the inside of a single wall production tubing string or well bore annulus (i.e., the annulus formed between the outside of the production tubing string and the well bore wall), and means for removing the material and clean out medium through the other of the inside of the production tubing string and the well bore annulus to the surface of the well bore.

Farris and Kunnemann do not teach a single wall production tubing string. Furthermore, none of the prior art teaches (1) an introducing means for introducing clean out medium into the

well bore annulus or (2) a removing means for removing material and clean out medium through either the well bore annulus or the inside of the production tubing string. There is no suggestion in any of the cited prior art of an introducing means (e.g. discharging compressor) which introduces clean out medium into the well bore annulus.

Further, Sinclair teaches a second compressor 38 (removing means) which draws a vacuum in riser pipes 18. It does not teach a removing means operably connected near the top of the production tubing string for removing clean out medium and materials through the inside of the production tubing string. Nor does Sinclair teach a removing means for removing material through the well bore annulus. Hence, claims 86-88 are not obvious over Farris in view of Kunnemann and Sinclair. Favorable reconsideration is respectfully requested.

New Claims

New independent claim 98, and claims 99-120 dependent thereon, are directed to a method for removing material from a well bore using a concentric coiled tubing string consisting essentially of an inner coiled tubing string and an outer coiled tubing string. None of the prior art cited by the Examiner teach such a method. In particular, Smet teaches a bundle of flexible hoses formed by a flexible casing in which a number of flexible tubes are situated, namely a central hose, two high pressure hoses and five low pressure hoses. Smet does not teach concentric coiled tubing string having essentially an inner and outer coiled tubing string. Thus, favorable consideration of these claims is requested.

New independent claim 121 is essentially the same as old claim 28 now written out in dependent form. Old claim 28 was rejected as being unpatentable over Smet in view of Sinclair. Applicant traverses such rejection for all of the reasons outlined in 10. above. Old claim 28 was further rejected as being unpatentable over Misselbrook et al. in view of Fischer et al. Applicant traverses such rejection for the reasons now following.

With respect, Misselbrook et al. does not teach a means for introducing pressurized clean out medium through the inner [space] or outer annulus. Rather, Misselbrook et al. teaches a means for introducing clean out medium through the production tubing-coiled tubing annulus, i.e., through annulus 59 not annulus 56. Page 7, paragraph 4, explains the equipment known in the art "that is capable of injecting fluid, such as clean out fluid or a slurry, downhole, including

down production tubing 32 into annulus 59 to flow between string S and production tubing 32" [emphasis added] (see, in particular, Figure 5). Thus, new claim 121 is not obvious over Misselbrook et al. in view of Fischer et al. Neither are dependent claims 123-145. Thus, favorable consideration of these claims is requested.

New claim 122, and claims 123-145 dependent thereon, are directed to an apparatus for removing material comprising a concentric coiled tubing string, said concentric coiled tubing string consisting essentially of an inner coiled tubing string having an upper end and a lower end and further having an inner space therethrough and an outer coiled tubing string having an upper end and a lower end, said inner coiled tubing string and said outer coiled tubing string forming an annulus therebetween, wherein said lower end of said inner coiled tubing string and said lower end of said outer coiled tubing string are in open communication with one another. None of the prior art cited by the Examiner teach such an apparatus. Thus, favorable consideration of these claims are requested.

New independent claim 146, and claims 147-151 dependent thereon, are directed to a method for removing material from a well bore comprising, among other steps, providing a downhole flow control means at or near the bottom of a concentric tubing string for preventing flow of hydrocarbon from the inner space, the annulus or both to the surface of the well bore. None of the prior art cited by the Examiner teach such a method. Thus, favorable consideration of these claims is requested.

New independent claim 152, and claims 153-155 dependent thereon, are directed to a method for removing material from a well bore comprising, among other steps, providing a surface flow control means positioned at or near the surface of the well bore for preventing the flow of hydrocarbon from a space between an outside wall of said outer tube means and a wall of said well bore. None of the prior art cited by the Examiner teach such a method. Thus, favorable consideration of these claims is requested.

New independent claim 156 is directed to a method for removing material from a well bore comprising, among other steps, flaring hydrocarbon produced from the well bore by means of a flare means. None of the prior art cited by the Examiner teach such a method. Thus, favorable consideration of this claim is requested.

New independent claim 157, and claims 158-161, are directed to an apparatus for removing material from a well bore comprising a downhole flow control means positioned at or near the bottom of a concentric tubing string for preventing a flow of hydrocarbon from the inner space, the annulus or both to the surface of the well bore. None of the prior art cited by the Examiner teach such an apparatus. Thus, favorable consideration of these claims is requested.

New independent claim 162 is directed to an apparatus for removing material from a well bore comprising a flare means operably connected to said removing means for flaring hydrocarbon produced from the well bore. None of the prior art cited by the Examiner teach such an apparatus. Thus, favorable consideration of this claim is requested.

New independent claim 163, and claims 164-165 dependent thereon, are directed to a method for removing material from a well bore comprising, among other steps, providing a downhole flow control means at or near the bottom of a production tubing string for preventing flow of hydrocarbon from the inside of the production tubing string to the surface of the well bore. None of the prior art cited by the Examiner teach such a method. Thus, favorable consideration of these claims is requested.

New independent claim 166 is directed to a method for removing material from a well bore comprising, among other steps, providing a surface flow control means positioned at or near the surface of the well bore for preventing flow of hydrocarbon from the outside of a production tubing string and a wall of said well bore. None of the prior art cited by the Examiner teach such a method. Thus, favorable consideration of this claim is requested.

New independent claim 167 is directed to a method for removing material from a well bore comprising, among other steps, flaring hydrocarbon produced from the well bore by means of a flare means. None of the prior art cited by the Examiner teach such a method. Thus, favorable consideration of this claim is requested.

New independent claim 168, and claims 169-170 dependent thereon, are directed to an apparatus for removing material from a well bore comprising a downhole flow control means at or near the bottom of said production tubing string for preventing flow of hydrocarbon from the

New independent claim 157, and claims 158-161, are directed to an apparatus for removing material from a well bore comprising a downhole flow control means positioned at or near the bottom of a concentric tubing string for preventing a flow of hydrocarbon from the inner space, the annulus or both to the surface of the well bore. None of the prior art cited by the Examiner teach such an apparatus. Thus, favorable consideration of these claims is requested.

New independent claim 162 is directed to an apparatus for removing material from a well bore comprising a flare means operably connected to said removing means for flaring hydrocarbon produced from the well bore. None of the prior art cited by the Examiner teach such an apparatus. Thus, favorable consideration of this claim is requested.

New independent claim 163, and claims 164-165 dependent thereon, are directed to a method for removing material from a well bore comprising, among other steps, providing a downhole flow control means at or near the bottom of a production tubing string for preventing flow of hydrocarbon from the inside of the production tubing string to the surface of the well bore. None of the prior art cited by the Examiner teach such a method. Thus, favorable consideration of these claims is requested.

New independent claim 166 is directed to a method for removing material from a well bore comprising, among other steps, providing a surface flow control means positioned at or near the surface of the well bore for preventing flow of hydrocarbon from the outside of a production tubing string and a wall of said well bore. None of the prior art cited by the Examiner teach such a method. Thus, favorable consideration of this claim is requested.

New independent claim 167 is directed to a method for removing material from a well bore comprising, among other steps, flaring hydrocarbon produced from the well bore by means of a flare means. None of the prior art cited by the Examiner teach such a method. Thus, favorable consideration of this claim is requested.

New independent claim 168, and claims 169-170 dependent thereon, are directed to an apparatus for removing material from a well bore comprising a downhole flow control means at or near the bottom of said production tubing string for preventing flow of hydrocarbon from the

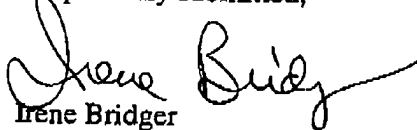
inner space to the surface of the well bore. None of the prior art cited by the Examiner teach such an apparatus. Thus, favorable consideration of these claims is requested.

New independent claim 171 is directed to an apparatus for removing material from a well bore comprising a surface flow control means positioned at or near the surface of the well bore for preventing the flow of hydrocarbon from the annulus. None of the prior art cited by the Examiner teach such an apparatus. Thus, favorable consideration of this claim is requested.

Finally, new independent claim 172 is directed to an apparatus for removing material from a well bore comprising a flare means operably connected to said removing means for flaring hydrocarbon produced from the well bore. None of the prior art cited by the Examiner teach such an apparatus. Thus, favorable consideration of this claim is requested.

In view of the arguments presented by Applicant herein, Applicant submits that claims 1 to 172 are in a condition for allowance and such allowance is respectfully requested.

Respectfully submitted,



Irene Bridger

Registration No. 53,914

Dated: November 26, 2004

Bennett Jones LLP
4500 Bankers Hall East
855 2nd Street SW
Calgary, Alberta T2P 4K7
(403) 298-3661